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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/082,146	02/26/2002	Nobuyuki Washio	1359.1063	3420
21171	7590	08/19/2005	EXAMINER	
STAAS & HALSEY LLP SUITE 700 1201 NEW YORK AVENUE, N.W. WASHINGTON, DC 20005			VO, HUYEN X	
			ART UNIT	PAPER NUMBER
			2655	

DATE MAILED: 08/19/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

**Application No.**

10/082,146

**Applicant(s)**

WASHIO, NOBUYUKI

**Examiner**

Huyen X. Vo

**Art Unit**

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 16 June 2005.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 26 February 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Response to Amendment***

1. Applicant has submitted an amendment filed 6/16/2005 while arguing to traverse prior art rejection based on amended limitations (see amendment). Applicant's arguments have been considered but are moot in view of the new ground(s) of rejection necessitated by claim amendment in view of Epstein (US 8645356).

### ***Claim Rejections - 35 USC § 101***

2. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

3. Claim 20 is rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

4. Claim 20 is drawn to a "program" *per se* as recited in the preamble and as such is non-statutory subject matter. See MPEP § 2106.IV.B.1.a. Data structures not claimed as embodied in computer readable media are descriptive material *per se* and are not statutory because they are not capable of causing functional change in the computer. See, e.g., *Warmerdam*, 33 F.3d at 1361, 31 USPQ2d at 1760 (claim to a data structure *per se* held nonstatutory). Such claimed data structures do not define any structural and functional interrelationships between the data structure and other claimed aspects of the invention, which permit the data structure's functionality to be

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realized. In contrast, a claimed computer readable medium encoded with a data structure defines structural and functional interrelationships between the data structure and the computer software and hardware components which permit the data structure's functionality to be realized, and is thus statutory. Similarly, computer programs claimed as computer listings *per se*, i.e., the descriptions or expressions of the programs are not physical "things." They are neither computer components nor statutory processes, as they are not "acts" being performed. Such claimed computer programs do not define any structural and functional interrelationships between the computer program and other claimed elements of a computer, which permit the computer program's functionality to be realized.

### ***Claim Rejections - 35 USC § 102***

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless – (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

6. Claims 1 and 18-19 are rejected under 35 U.S.C. 102(e) as being anticipated by Epstein (US 864556).

7. Regarding claims 1 and 18, Epstein discloses a sound signal recognition system and method, comprising: a sound signal input part receiving a sound signal including

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either one selected from a voice signal section or a DTMF signal section or both sections (*col. 5, line 63 to col. 6, line 6 or referring to figures 1-2*); a sound signal analyzing part calculating a feature value by conducting an acoustic process for each segment, of a sound signal section, to be a recognition unit with respect to an inputted sound signal (*the IVR unit 115 in figure 1 processes and analyzes the received sound signal to determine whether the received signal is a voice signal or a DTMF signal and routes the signal to SR system 120 or DTMF converter 140*); a matching part including a voice signal model and a DTMF model, matching the feature value inputted from the sound signal analyzing part with both the voice signal model and the DTMF signal model (*col. 6, lines 23-42, SR system and DTMF converter inherently include associated reference models in order to convert speech and/or DTMF into equivalent text words*); and a sound signal recognizing part including a language model, recognizing the sound signal by using the matching result of the matching part and the language model (*col. 6, lines 23-42, SR system and DTMF converter inherently include associated reference models in order to convert speech and/or DTMF into equivalent text words*), wherein a sound signal recognition process is conducted with respect to the sound signal including either one selected from the voice signal section or the DTMF signal section or both sections (*elements 120 and 140 in figure 1*).

8. Regarding claim 19, Epstein further discloses a dialog control method including the sound signal recognition method of claim 18, which controls a dialog flow with a user, based on a sound signal recognition result using the sound signal recognition

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method (*elements 115 and 130 in figure 1, the functionality of an IVR system and the NLU unit is well known*).

***Claim Rejections - 35 USC § 103***

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. Claims 2-3, 5-6, 8, and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Epstein (US 864556) in view of Sewall et al. (US 6708146).

11. Regarding claim 2, Epstein fails to disclose a sound signal recognition system according to claim 1, wherein the sound signal recognizing part selects a better result by comparing the matching result using the voice signal model with the matching result using the DTMF signal model in the matching part for each segment of a sound signal section serving as a recognition unit, the sound signal recognition system further comprising an integrating part for connecting sound signal recognition results selected by the sound signal recognizing part and integrating them as a total sound signal recognition result with respect to all the sections of the input sound signal.

However, Sewall et al. further teach that the sound signal recognizing part selects a better result by comparing the matching result using the voice signal model

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with the matching result using the DTMF signal model in the matching part for each segment of a sound signal section serving as a recognition unit (*col. 10, lines 45-67 different classes of signals include DTMF signal and voice signal mentioned in col. 19, lines 28-44*), the sound signal recognition system further comprising an integrating part for connecting sound signal recognition results selected by the sound signal recognizing part and integrating them as a total sound signal recognition result with respect to all the sections of the input sound signal (*the operation in any of the figures 1-6 is an integrated sound signal recognition system*).

Since Epstein and Sewall et al. are analogous art because they are from the same field of endeavors, it would have been obvious to one of ordinary skill in the art at the time of invention to modify Epstein by incorporating the teaching of Sewall et al. in order to realize a smaller and cheaper signal classifier with superior classification resolution and accuracy.

12. Regarding claims 3, 5-6, 8, and 17, Epstein further discloses a sound signal recognition system, wherein the language model is capable of including a DTMF signal as sound signal recognition vocabulary (*DTMF converter 140 in figure 1*), and which controls a dialog flow with a user, based on a sound signal recognition result according to the sound signal recognition system (*elements 115 and 130 in figure 1, the functionality of an IVR system and the NLU unit is well known*).

13. Claims 4 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Epstein (US 864556) in view of Sewall et al. (US 6708146), and further in view of Larsen (IEEE Publication – Investigating a Mixed-Initiative Dialogue Management Strategy).

14. Regarding claims 4 and 7, the modified Epstein fails to disclose a sound signal recognition system that comprises a guidance part for providing a user who performs sound signal input via the sound signal input part with guidance on whether a specific vocabulary is to be input as sound signal input by a voice or sound signal input by a DTMF signal. However, Larsen teaches a guidance part for providing a user who performs sound signal input via the sound signal input part with guidance on whether a specific vocabulary is to be input as sound signal input by a voice or sound signal input by a DTMF signal (*the Application Section on page 66-67*).

Since the modified Epstein and Larsen are analogous art because they are from the same field of endeavors, it would have been obvious to one of ordinary skill in the art at the time of invention to further modify Epstein by incorporating the teaching of Larsen in order to achieve effective communications between the end user and the service provider.

15. Claims 9-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Epstein (US 864556) in view of Larsen (IEEE Publication – Investigating a Mixed-Initiative Dialogue Management Strategy).

16. Regarding claim 9, Epstein fails to disclose a sound signal recognition system that comprises a guidance part for providing a user who performs sound signal input via the sound signal input part with guidance on whether a specific vocabulary is to be input as sound signal input by a voice or sound signal input by a DTMF signal. However, Larsen teaches a guidance part for providing a user who performs sound signal input via the sound signal input part with guidance on whether a specific vocabulary is to be input as sound signal input by a voice or sound signal input by a DTMF signal (*the Application Section on page 66-67*).

Since Epstein and Larsen are analogous art because they are from the same field of endeavors, it would have been obvious to one of ordinary skill in the art at the time of invention to modify Epstein by incorporating the teaching of Larsen in order to achieve effective communications between the end user and the service provider.

17. Regarding claim 10, the modified Epstein fails to disclose a sound signal recognition system according to claim 9, wherein upon detecting that a misidentification rate of a sound signal inputted by a voice for a specific vocabulary is high under predetermined conditions, the integrating part notifies the guidance part of instruction information for outputting guidance for asking the user to conduct re-input of the sound signal by a DTMF signal for the specific vocabulary. However, Larsen further teaches that upon detecting that a misidentification rate of a sound signal inputted by a voice for a specific vocabulary is high under predetermined conditions, the integrating part

notifies the guidance part of instruction information for outputting guidance for asking the user to conduct re-input of the sound signal by a DTMF signal for the specific vocabulary (*the Application Section on pages 66-67*).

Since the modified Epstein and Larsen are analogous art because they are from the same field of endeavors, it would have been obvious to one of ordinary skill in the art at the time of invention to further modify Epstein by incorporating the teaching of Larsen in order to achieve effective communications between the end user and the service provider.

18. Regarding claim 12, the modified Epstein fails to specifically disclose a sound signal recognition system according to claim 9, wherein when the integrating part estimates and holds a misidentification rate in the matching result for the sound signal by a voice and a misidentification rate in the matching result for the sound signal by a DTMF signal, and either one of the misidentification rates becomes higher than a predetermined value, the integrating part notifies the guidance part of instruction information for displaying guidance to the user to conduct input by the other sound signal. However, Larsen further teaches that when the integrating part estimates and holds a misidentification rate in the matching result for the sound signal by a voice and a misidentification rate in the matching result for the sound signal by a DTMF signal, and either one of the misidentification rates becomes higher than a predetermined value, the integrating part notifies the guidance part of instruction information for displaying

guidance to the user to conduct input by the other sound signal (*the Application Section on pages 66-67*).

Since the modified Epstein and Larsen are analogous art because they are from the same field of endeavors, it would have been obvious to one of ordinary skill in the art at the time of invention to further modify Epstein by incorporating the teaching of Larsen in order to achieve effective communications between the end user and the service provider.

19. Regarding claim 14, the modified Epstein fails to disclose a sound signal recognition system according to claim 9, wherein the guidance part has a function of notifying a user of correspondence between a DTMF signal and a vocabulary in advance. However, Larsen further teaches the guidance part has a function of notifying a user of correspondence between a DTMF signal and a vocabulary in advance (*the Application Section on pages 66-67*).

Since the modified Epstein and Larsen are analogous art because they are from the same field of endeavors, it would have been obvious to one of ordinary skill in the art at the time of invention to further modify Epstein by incorporating the teaching of Larsen in order to achieve effective communications between the end user and the service provider.

20. Regarding claims 11, 13, and 15-16, Epstein further discloses a dialog control system including a sound signal recognition system, which controls a dialog flow with a

user, based on a sound signal recognition result according to the sound signal recognition system (*elements 115 and 130 in figure 1, the functionality of an IVR system and the NLU unit is well known*).

### **Conclusion**

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Uehara (US 5220595), O'Brien (US 6601031), and Wesemann et al. (US 6731724) are considered pertinent to the claimed invention.


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Huyen X. Vo whose telephone number is 571-272-7631. The examiner can normally be reached on M-F, 9-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wayne Young can be reached on 571-272-7582. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

HXV

8/11/2005

  
SUSAN MCFADDEN  
PRIMARY EXAMINER